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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Inventor: R. Stewart

Serial No: 10/016,840 ✓

Filing Date: Dec. 13, 2001

Title: THIN SHEET MIRROR AND
Nd₂O₃ DOPED GLASS

Group Art Unit: 1775

Examiner: G. A. Blackwell-Rudasill

DECLARATION

Commissioner for Patents
P. O. Box 1450
Alexandria, VA 22313-1450

DECLARATION OF RONALD L. STEWART
UNDER 37 C.F.R. § 1.132

Sir:

I, Ronald L. Stewart, residing at 5 Cardinal Lane, Big Flats, NY 14814, declare:

1. I obtained a Ph.D. degree in Ceramic Science from The Pennsylvania State University in 1981.

2. In 1980, I joined Corning Incorporated as a research scientist.

3. I have been engaged in inventing, developing and producing glass and glass-ceramic materials and products since I joined Corning Incorporated.

4. I am the sole Applicant of the above-captioned patent application.

5. It is my understanding that, according to my experiments and accumulated expertise in the field of glass, a glass having the following composition, expressed in weight percentage on an oxide basis, consisting essentially of: 55-70% SiO₂, 0.5-4.5% Al₂O₃, 6-14% B₂O₃, 3-10% ZnO, 5-11% Na₂O, 2-9% K₂O, 7-20% Na₂O+K₂O, as well as 5-10% Nd₂O₃, has the following technical advantages:

- (i) The glass is suitable for producing thin glass sheets having a thickness less than 0.5 mm, via, for example, the slot-draw process;
- (ii) The Nd₂O₃ contained in the glass tends less likely to devitrify in the glass and stay dissolved in the glass during the production process. Solution of Nd₂O₃ in the

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glass without devitrification is conducive to high and effective absorption of yellow light in the range from 565-595 nm.

6. It is also my understanding that, with regard to European Application Publication No. EP 0441 128 A1 (EP '128), which teaches a glass having a composition, expressed in weight percentage on an oxide basis, consisting essentially of: 50-60% SiO₂, 10-30% Nd₂O₃, 0-1% As₂O₃/Sb₂O₃, 5-15% B₂O₃, 3-8% Na₂O, 0.1-10% ZnO, 0-3% Li₂O, 0-3% K₂O, 0-7 Al₂O₃, 0-15% PbO, 0-3% MgO, 0-3% CaO, 0-3% SrO, 0-3% BaO, 0-7%

Σ (V₂O₅+Cr₂O₃+Mn₂O₃+Fe₂O₃+CoO+NiO+CuO), 0-5% TiO₂, and 0-1% Pr₆O₁₁:

- (i) EP '128 is not particularly concerned with thin-sheet glass having a thickness less than 0.5 mm. Rather, it is primarily concerned with the chemical strengthenability of the glass. Indeed EP '128 does not contain a disclosure as to whether the glass composition is fit for producing thin sheet glass via slot draw process. I could not, at the time of the invention, derive the glass composition of the present invention for the thin sheet glass from the teaching of EP '128;
- (ii) I believe many glasses in the compositional range as taught in EP '128 would not be suitable for slot draw process without devitrification of Nd₂O₃ in the glass. This is especially true when the high Nd₂O₃ content (10-30%) is taken into consideration.

7. I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under 38 U.S.C. § 1001, and that such willful false statements may jeopardize the validity of the application or any patent issuing thereon.

7/1/2003
Date

Ronald L. Stewart
Ronald L. Stewart (Signature)